

REMARKS

Claims 37-41 are amended. Claims 37-53 are pending in the application.

Claims 37-40, 42-43, 46-47 and 50-51 stand rejected under 35 U.S.C. § 102(b) as being anticipated by "Development of a Submicrometer-Grained Microstructure in Aluminum 6061 using Equal Channel Angular Extrusion", (*Development*). The Examiner is reminded by direction to MPEP § 2131 that anticipation requires each and every element of a claim to be disclosed in a single prior art reference. Claims 37-40, 42-43, 46-47 and 50-51 are allowable over *Development* for at least the reason that the reference does not disclose each and every element in any of those claims.

As amended, independent claim 37 recites subjecting a cast material to solutionizing and at least one of homogenizing and hot forging and subsequently subjecting the alloy to a predetermined number of passes through selected ECAE routes. The amendment to claim 37 is supported by the specification at, for example, page 2, lines 8-35 and page 5, line 25 through page 7, line 9. *Development* does not disclose or suggest subjecting a cast material to at least one of homogenizing and hot forging and subsequently subjecting the material to equal channel angular extrusion. Accordingly, independent claim 37 is not anticipated by *Development* and is allowable over this reference.

Dependent claims 42-43 and 47 are allowable over *Development* for at least the reason that they depend from allowable base claim 37.

As amended, independent claim 38 recites subjecting a cast material to at least one of homogenizing and hot forging prior to equal channel angular extrusion. As amended, independent claim 39 recites subjecting a cast material to at least two of homogenizing, hot forging and solutionizing prior to equal channel angular extrusion. As amended,

independent claim 40 recites hot forging a cast material prior to equal channel angular extrusion. Each of independent claims 38, 39 and 40 are not anticipated by *Development* for at least the reason that *Development* does not disclose or suggest performing homogenizing or hot forging prior to equal channel angular extrusion.

Dependent claims 50 and 51 are allowable over *Development* for at least the reason that they depend from allowable base claim 40.

Claims 44-46 and 48-49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of *Development* and "Stress-Relief Heat Treating of Steel". The Examiner is reminded by direction to MPEP § 2143 that a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Claims 44-46 and 48-49 are allowable over *Development* and *Stress-Relief* for at least the reason that the references, individually or as combined, fail to disclose or suggest each and every element in any of those claims.

As discussed above, independent claim 37 is not anticipated by *Development*. Further, *Development* does not suggest the claim 37 recited subjecting a cast material to at least one of homogenizing and hot forging prior to ECAE and claim 37 is not rendered obvious by *Development*. As indicated at page 5 of the present Action, "Stress-Relief" is relied upon as showing heat treatment to relieve residual stresses. As combined with *Development*, the heat treatment methods disclosed by "Stress-Relief" do not contribute toward suggesting the claim 37 recited performing at least one of homogenizing and hot forging prior to equal channel angular extrusion of a cast material. Accordingly,

independent claim 37 is not rendered obvious by the combination of *Development* and "Stress-Relief" and is allowable over this reference. Dependent claims 44-46 and 48-49 are allowable over the combination of *Development* and "Stress-Relief" for at least the reason that they depend from allowable base claim 37.

Claims 41 and 52-53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Development* in view of Segal, U.S. Patent No. 5,513,512. As amended, claim 41 recites subjecting a cast material to solutionizing and at least one of homogenizing and hot forging prior to performing equal channel angular extrusion. As discussed above, *Development* does not disclose or suggest the recited preliminary treatment utilizing solutionizing and one or more homogenizing and hot forging prior to equal channel angular extrusion. As indicated at page 6 of the present Action, Segal is relied upon as showing textures and grain size created by equal channel angular extrusion. As combined with *Development*, the equal channel angular extrusion creation of texture and/or grain size disclosed by Segal does not contribute toward suggesting the claim 41 recited preliminary treatment comprising solutionizing and at least one of homogenizing and hot forging prior to equal channel angular extrusion. Accordingly, independent claim 41 is not rendered obvious by the cited combination of *Development* and Segal and is allowable over these references.

Dependent claims 52 and 53 are allowable over the combination of *Development* and Segal for at least the reason that they depend from allowable base claim 41.

For the reasons discussed above, pending claims 37-53 are allowable. Accordingly, applicant respectfully requests formal allowance of such pending claims in the Examiner's next action.

Respectfully submitted,

Dated: March 22, 2004

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